

## PATENT COOPERATION TREATY

## PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PL70010PC00	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/SE 2003/001192	International filing date (day/month/year) 08-07-2003	Priority date (day/month/year) 08-07-2002
International Patent Classification (IPC) or national classification and IPC G01S 13/08, G01F 23/284		
Applicant SAAB MARINE ELECTRONICS AB et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 28-01-2004	Date of completion of this report 22-09-2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Göran Magnusson /itw Telephone No. +46 8 782 25 00

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/001192

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))  
☐ publication of the international application (under Rule 12.4)  
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/001192

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-10</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>2-7, 9</u>	YES
	Claims	<u>1, 8, 10</u>	NO
Industrial applicability (IA)	Claims	<u>1-10</u>	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US 2002020216 A1

D2: US 5659321 A

D1 discloses a level gauging system comprising only one radar level gauge transmitting and receiving on a plurality of frequencies. The frequencies are transmitted and received sequentially by means of a switch and, depending on the application environment, the best frequency is selected (see figure 1). A shared antenna for all frequencies can be used if this is permitted by the frequencies of the transmitter/receiver modules, e.g. when the individual frequencies are in a harmonic relation to each other (see paragraphs [0017] and [0023]).

D2 discloses a radar level gauging system adapted for a lower frequency band (5.8 GHz). The radar system is, by means of a frequency converter, adapted to transmit and receive within another, higher frequency band (24 GHz). See column 1, lines 32-59 and column 3, lines 7-13.

The problem to be solved by the invention is to measure a surface level in a tank under very different conditions by only one radar level gauge.

D1 is considered to represent the closest prior art.

The invention claimed in independent claims 1, 8 and 10 differs from D1 in that a surface level is measured on at least two widely separated frequency bands. This difference solves the problem with level measurements in a tank under

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## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: Box V

different conditions.

A person skilled in the art, faced with this problem, finds a solution in D2. D2 discloses that each of the two widely separated frequency bands 5.8 GHz and 24 GHz have their advantages due to their differences in beam-width and in attenuation due to a foam layer on the surface. It is considered obvious to a person skilled in the art to switch between different frequency bands instead of different frequencies in the system of D1.

Thus, a person skilled in the art, having the system known from D1 as a starting point, aiming to solve the identified problem, would with knowledge of D2 arrive at the invention claimed in claims 1, 8 and 10. Since D1 and D2 relate to the same technical field and no unexpected effect is obtained, the combination of what is known from D1 and D2 is considered obvious to a person skilled in the art. Accordingly, the invention claimed in claims 1, 8 and 10 does not fulfil the requirement of inventive step.

To sum up, the invention claimed in claims 1-10 is novel (N), but claims 1, 8 and 10 does not involve an inventive step (IS). All claims have industrial applicability (IA).